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Set     Items   Description
S1         32   HD (S) (SIRNA OR RNAI)
S2         25   RD  (unique items)
S3          5   S2 NOT PY>2002
S4          0   S1 AND AU=MCSWIGGEN
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T S3/FULL/ALL

3/9/1 (Item 1 from file: 357)
DIALOG(R)File 357:Derwent Biotech Res.

0396397 DBR Accession No.: 2006-09893
rAAV-mediated shRNA ameliorated neuropathology in Huntington disease model mouse - transgenic mouse animal model construction for use in mutant gene expression inhibition, as a silencer and in post-symptomatic Huntington chorea gene therapy
AUTHOR: MACHIDA Y; OKADA T; KUROSAWA M; OYAMA F; OZAWA K; NUKINA N
CORPORATE AFFILIATE: RIKEN Jichi Med Sch
CORPORATE SOURCE: Nukina N, RIKEN, Brain Sci Inst, Lab Struct Neuropathol, 2-1 Hirosawa, Wako, Saitama 3510198, Japan
JOURNAL: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS) 343, 1, 190-197
ISSN: 0006-291X
LANGUAGE: English
ABSTRACT: AUTHOR ABSTRACT - Huntington disease (HD) is a fatal progressive neurodegenerative disorder associated with expansion of a CAG repeat in the first exon of the gene coding the protein huntingtin (hit). Although the feasibility of RNA interference (RNAi)-mediated reduction of hit expression to attenuate HD-associated symptoms is suggested, the effects of post-symptomatic RNAi treatment in the HD model mice have not yet been certified. Here we show the effects of recombinant adeno-associated virus (rAAV)-mediated delivery of RNAi into the HD model mouse striatum after the onset of disease. Neuropathological abnormalities associated with HD, such as insoluble protein accumulation and down-regulation of DARPP-32 expression, were successfully ameliorated by the RNAi transduction. Importantly, neuronal aggregates in the striatum were reduced after RNAi transduction in the animals comparing to those at the time point of RNAi transduction. These results suggest that the direct inhibition of mutant gene expression by rAVV would be promising for post-symptomatic HD therapy. (8 pages)
DESCRIPTORS: recombinant adeno-associated virus-mediated RNA interference, short hairpin RNA transduction, huntingtin-epidermal growth factor gene expression in transgenic mouse animal model construction, insoluble protein accumulation, DARPP-32 expression downregulation amelioration, appl., mutant gene expression inhibition, silencer, post-symptomatic Huntington chorea gene therapy protein transgenic animal mammal 4p16.3 chromosome-4 DNA sequence (25, 17)
SECTION: THERAPEUTICS-Gene Therapy-GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques and Analysis; GENETIC TECHNIQUES and APPLICATIONS-Transgenic Animals and Animal Models-DISEASE-Central Nervous System

3/9/2 (Item 2 from file: 357)
DIALOG(R)File 357:Derwent Biotech Res.

0385572 DBR Accession No.: 2005-31278
siRNA-mediated inhibition of endogenous Huntington disease gene expression induces an aberrant configuration of the ER network in vitro - for use in Huntington chorea and neurodegenerative disorder gene therapy
AUTHOR: OMI K; HACHIYA NS; TOKUNAGA K; KANEKO K
CORPORATE AFFILIATE: Tokyo Med Univ Univ Tokyo
CORPORATE SOURCE: Kaneko K, Tokyo Med Univ, Dept Physiol, Tokyo 1608402,

Japan
JOURNAL: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS) 338, 2, 1229-1235
ISSN: 0006-291X
LANGUAGE: English
ABSTRACT: AUTHOR ABSTRACT - Huntingtin is a ubiquitously expressed cytoplasmic protein encoded by the Huntington disease (HD) gene, in which a CAG expansion induces an autosomal dominant progressive neurodegenerative disorder; however, its biological function has not been completely elucidated. Here, we report for the first time that short interfering RNA (siRNA) -mediated inhibition of endogenous Hdh (a mouse homologue of huntingtin) gene expression induced an aberrant configuration of the endoplasmic reticulum (ER) network in vitro. Studies using inummofluorescence microscopy with several ER markers revealed that the ER network appeared to be congregated in various types of cell lines transfected with siRNA directed against Hdh, but not with other siRNAs so far tested. Other subcellular organelles and structures, including the nucleus, Golgi apparatus, mitochondria, lysosomes, microtubules, actin cytoskeletons, cytoplasm, lipid rafts, and plasma membrane, exhibited normal configurations. Western blot analysis of cellular prion protein (PrPC) revealed normal glycosylation, which is a simple marker of post-translational modification in the ER and Golgi compartments, and immunofluorescence microscopy detected no altered subcellular distribution of PrPC in the post-ER compartments. Further investigation is required to determine whether the distorted ER network, i.e., loss of the huntingtin function, participates in the development of HD. (c) 2005 Elsevier Inc. All rights reserved. (7 pages)
DESCRIPTORS: small interfering RNA, RNA interference, recombinant vector-mediated huntingtin gene tranfer, expression in host cell, immunofluoresence, appl., Huntington chorea, neurodegenerative disorder gene therapy 4p16.3 chromosome-4 (24, 51)
SECTION: THERAPEUTICS-Gene Therapy-GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques and Analysis; DISEASE-Central Nervous System

3/9/3 (Item 3 from file: 357)
DIALOG(R)File 357:Derwent Biotech Res.

0369518 DBR Accession No.: 2005-15224
RNA interference improves motor and neuropathological abnormalities in a Huntington's disease mouse model - RNA interference against mutant huntingtin gene and transgenic animal model for use in disease therapy and gene therapy
AUTHOR: HARPER SQ; STABER PD; HE XH; ELIASON SL; MARTINS IH; MAO QW; YANG L; KOTIN RM; PAULSON HL; DAVIDSON BL
CORPORATE AFFILIATE: Univ Iowa Univ Iowa Univ Iowa NHLBI
CORPORATE SOURCE: Davidson BL, Univ Iowa, Program Gene Therapy, Dept Internal Med, Iowa City, IA 52242 USA
ISSN: 0027-8424 CODEN: 0027-8424; PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AME; (2005) 102, 16, 5820-5825
LANGUAGE: English
ABSTRACT: AUTHOR ABSTRACT - Huntington's disease (HD) is a fatal, dominant neurogenetic disorder. HD results from polyglutamine repeat expansion (CAG codon, Q) in exon 1 of HD, conferring a toxic gain of function on the protein huntingtin (htt). Currently, no preventative treatment exists for HID. RNA interference (RNAi) has emerged as a potential therapeutic tool for treating dominant diseases by directly reducing disease gene expression. Here, we show that RNAi directed against

mutant human htt reduced htt mRNA and protein expression in cell culture and in HD mouse brain. Importantly, htt gene silencing improved behavioral and neuropathological abnormalities associated with HID. Our data provide support for the further development of RNAi for HD therapy. (6 pages)
DESCRIPTORS: human recombinant huntingtin htt expression reduction, gene silencing, RNA interference, short hairpin RNA, transgenic mouse model, vector plasmid pCMV-HD-N171-82Q-mediated gene transfer expression in HEK-293, appl. neuropathological abnormality, Huntington disease therapy, gene therapy mammal animal cell culture embryo kidney human (24, 24)
SECTION: THERAPEUTICS-Gene Therapy-GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques and Analysis; BIOMANUFACTURING and BIOCATALYSIS-Animal/Plant Cell Culture-DISEASE-Central Nervous System

3/9/4 (Item 4 from file: 357)
DIALOG(R)File 357:Derwent Biotech Res.

0366631 DBR Accession No.: 2005-12339
Sleeping Beauty-mediated down-regulation of huntingtin expression by RNA interference - a transgenic mouse animal model useful for the development of a gene therapy treatment for Huntington chorea using RNA interference
AUTHOR: CHEN ZYJ; KREN BT; WONG PYP; LOW WC; STEER CJ
CORPORATE AFFILIATE: Univ Minnesota Univ Minnesota Univ Minnesota
CORPORATE SOURCE: Steer CJ, Univ Minnesota, Sch Med, Dept Med, Minneapolis, MN 55455 USA
JOURNAL: BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS) 329, 2, 646-652
ISSN: 0006-291X
LANGUAGE: English
ABSTRACT: AUTHOR ABSTRACT - Huntington disease (HD) is a devastating neurologic disorder that is characterized by abnormal expansion of a CAG nt repeat in the first exon of the huntingtin (htt) gene, producing a mutant protein with an elongated polyglutamine stretch. The presence of this Mutant protein is correlated with the characteristic loss of striatal neurons and the clinical manifestation of HD. Currently there is no effective treatment for the associated cell death. The aim of this study was to evaluate an innovative strategy combining RNA interference (RNAi) and gene transfer via the nonviral Sleeping Beauty (SB) transposon system to down-regulate Hit expression. siRNA expression vectors were designed to target exons 1, 4, 6, and 62 of the human fat gene. Real-time RT-PCR and Western blot analysis were used to quantify Htt mRNA and protein levels, respectively. in human cell lines. The results indicated that selected siRNA constructs significantly decreased Hit mRNA and protein levels relative to controls. In addition, SB transposition of the siRNA constructs into the genome reduced long-term protein expression of Hit by similar to 90%. The combination of siRNA, the SB transposon, and an accurate transgenic mouse model may permit evaluation of this approach in preventing the pathogenesis associated with expression of mutant Hyt. (7 pages)
DESCRIPTORS: transgenic mouse, animal model, huntingtin gene expression, inhibition, RNA interference, adeno-associated virus, gene transfer, appl., Huntington chorea gene therapy transgenic animal mammal parvo virus 4p16.3 chromosome-4 DNA sequence (24, 20)
SECTION: GENETIC TECHNIQUES and APPLICATIONS-Transgenic Animals and Animal Models-GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques

and Analysis; DISEASE-Central Nervous System-THERAPEUTICS-Gene Therapy

3/9/5 (Item 5 from file: 357)

DIALOG(R)File 357:Derwent Biotech Res.

0303562 DBR Accession No.: 2003-05347 PATENT

New isolated or recombinant Bcl-B nucleic acids and polypeptides, for treating a disorder associated with apoptosis, such as cell degenerative or proliferative disorder e.g. cancer, Alzheimer's disease or Parkinson's disease - antiapoptotic protein, sense, antisense and drug screening useful for gene therapy

AUTHOR: REED J C; KE N; GODZIK A

PATENT ASSIGNEE: BURNHAM INST 2002

PATENT NUMBER: WO 200272601 PATENT DATE: 20020919 WPI ACCESSION NO.: 2002-723312 (200278)

PRIORITY APPLIC. NO.: US 71174 APPLIC. DATE: 20020207

NATIONAL APPLIC. NO.: WO 2002US3547 APPLIC. DATE: 20020207

LANGUAGE: English

ABSTRACT: DERWENT ABSTRACT: NOVELTY - An isolated or recombinant nucleic acid (I) comprising at least 70 % identity to an 887 base pair sequence (S1), given in the specification, where the nucleic acid encodes a polypeptide that modulates apoptosis, or a sequence that hybridizes to S1 under stringent hybridization conditions, is new. The nucleic acid is distinct from Expressed Sequence Tag accession number AA098865. DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) an expression cassette comprising a polynucleotide sequence having at least 70 % identity to S1 operably linked to an expression control element; (2) a transformed cell comprising the novel nucleic acid; (3) a non-human transgenic animal comprising a polynucleotide sequence having at least 70 % identity to S1; (4) a transgenic plant comprising a nucleic acid sequence having at least 70 % identity to S1; (5) a seed capable of germinating into a plant having in its genome a heterologous nucleic acid sequence having at least about 70% identity to S1; (6) an isolated or recombinant polypeptide comprising a sequence having at least 65 % identity to a 204 residue amino acid sequence (S2), given in the specification, and having one or more activities of the polypeptide of S2; (7) an antibody that specifically binds to a polypeptide comprising the sequence of S2, or its immunogenic subsequence; (8) a chimeric polypeptide comprising the polypeptide of (6), and a second polypeptide sequence; (9) a kit comprising (I), the polypeptide of (6), or the antibody of (7) in a container; (10) a composition comprising (I), the polypeptide, or the antibody in a carrier; (11) producing a polypeptide of (6); (12) detecting the presence of a polynucleotide sequence encoding the polypeptide of (6); (13) modulating apoptosis of a cell; (14) treating a subject having or at risk of a disorder associated with apoptosis; (15) identifying a gene or agent that modulates expression, activity, or binding of the polypeptide of (6); (16) identifying a molecule that binds to the polypeptide of (6); and(17) detecting Bcl-B in a sample. BIOTECHNOLOGY - Preferred Nucleic Acid: (I) having at least 80, 90, or 95 % identity to the sequence of S1. The sequence is less than 50, 25, 10, 5, or 2.5 kbase. The sequence is selected from: (a) the sequence of S1; (b) the sequence of S1, where one or more T's are U; (c) nucleic acid sequences complementary to (a) or (b); or (d) subsequences of (a), (b) or (c) that are at least 15 base pairs long. The sequence is attached to a substrate. The sequence comprises several sequences attached at defined positions of the substrate. The sequence also has a length of 12-30, 30-50, 50-100, 100-250, 250-500, 500-1000, 1000-2500,

2500-5000 or 5000-10000 base pairs. Preferred Expression Cassette: The expression control element comprises a promoter or enhancer, and is constitutive, inducible, tissue-specific or developmentally regulated. The expression cassette further comprises a vector that confers expression in bacteria, plant, insect, mammalian or yeast cell. The vector comprises a viral vector, which is an adenovirus, retrovirus, adeno-associated virus, lentivirus, reovirus, rotavirus, herpes simplex virus, parvovirus, papilloma virus or cytomegalovirus. The polynucleotide sequence encodes a polypeptide that inhibits apoptosis, or an antisense that stimulates or induces apoptosis. The polypeptide comprises the sequence of S2. Preferred Transformed Cell: The cell is a bacteria plant, insect, mammalian or yeast cell, where the mammalian cell is human. Preferred Transgenic Animal: The animal expresses a polypeptide or an antisense that modulates apoptosis. The expression of the polypeptide or antisense is tissue-specific, and is in one or more cells of the heart, brain, lung, kidney, liver, pancreas, spleen, thymus, colon, muscle, leukocyte, small intestine, testis, prostate or ovary. Preferred Transgenic Plant: The nucleic acid encodes a polypeptide that modulates apoptosis in a germinated plant cell. The plant is resistant to abiotic or biotic insult induced by a plant pathogen such as a virus, a fungus, a bacteria or a nematode. High moisture, low moisture, salinity, nutrient deficiency, air pollution, high temperature, low temperature, soil toxicity, herbicides or insecticides induce the abiotic insult. At least a portion of the plant exhibits a decreased level of senescence. Preferred Polypeptide: The polypeptide of (6) have at least 75, 85, 90, or 95 % identity to the sequence of S2. The polypeptide is at least about 50, 75, 125, 150 or 200 amino acids in length. The transmembrane domain comprises a mitochondrial protein or a Bcl-2 protein family member transmembrane domain. The activity is selected from modulating apoptosis, homodimerization, heteromerization, binding to Bcl-2, Bcl-XL or Bax, forming a membrane channel, associating with mitochondria, or immunogenicity. The polypeptide inhibits Bax mediated apoptosis, or does not detectably inhibit Bak mediated apoptosis. The polypeptide contains one or more BH1, BH2, BH3 or BH4 domains given in the specification. The second polypeptide sequence of the chimeric polypeptide comprises a tag. The portion of the chimera having at least 65 % identity to S2 is encoded by a polynucleotide sequence having at least 70 % identity to S1. Preferred Antibody: The antibody modulates an activity of Bcl-B, where the activity comprises modulating apoptosis. The antibody comprises several antibodies attached at defined positions of the substrate. Preferred Kit: The container includes instructions for detecting (I), a polynucleotide or polypeptide that binds to the polypeptide of (6), or a polypeptide comprising a sequence of S2. Preferred Method: Producing a polypeptide comprising expressing a nucleic acid encoding a polypeptide of (6), where the nucleic acid is expressed in solution, or in a cell in vitro or in vivo. Detecting the presence of a polynucleotide sequence encoding the polypeptide of (6) comprising contacting a sample with (I) or the antibody of (7), and detecting the presence of a polynucleotide sequence encoding the polypeptide of (6) in the sample. Modulating apoptosis of a cell comprising contacting the cell with the polypeptide, (I), the antibody, an antisense sequence having at least 70 % identity to S1, or a dominant negative Bcl polypeptide. Apoptosis is induced or increased, or prevented or inhibited. The cell is at risk of apoptosis or is undergoing apoptosis. The cell expresses Bax, where the cell is present in a subject at risk of or is suffering from a disorder associated with apoptosis, such as a cell degenerative or proliferative disorder. The degenerative disorder comprises neural or muscle degeneration. The disorder is Alzheimer's disease, Parkinson's

disease, Creutzfeldt-Jacob's disease (CJD), Huntington disease (HD), Machado-Joseph disease (MJD), spinocerebellar ataxias 1, 2 and 6 (SCA-1, -2 and -6), dentatorubropallidoluysian atrophy (DRPLA), Kennedy's disease, ischemia, stroke or head trauma. The antisense expression is conferred by an expression control element. The cell is at risk of undesirable proliferation or is hyperproliferating. The cell proliferative disorder comprises a neoplasia, autoimmune disorder or fibrotic condition. Treating a subject having or at risk of a disorder associated with apoptosis by administering to the subject the polypeptide, (I), or its antisense, or the antibody. The antisense comprises a sequence complementary to Bcl-B sense strand, a sequence that forms a triplex with Bcl-, a ribozyme, a DNAzyme or Rnai molecule. Identifying a gene or agent that modulates expression or activity of the polypeptide of (6) comprising contacting a cell that expresses the polypeptide with a test gene or test agent, and measuring expression or activity of the polypeptide or nucleic acid encoding the polypeptide, where an increase or decrease in the amount or activity of the polypeptide or nucleic acid encoding the polypeptide identifies the test gene or test agent as a modulator of the polypeptide's expression or activity. The cell has been transformed with a nucleic acid that encodes the polypeptide. The test gene or test agent comprises a library of genes or agents. The activity comprises increased or decreased cellular apoptosis, DNA fragmentation or caspase activity. The yeast cell expresses Bax and the activity modulated comprises increased or decreased Bax-mediated yeast cell death. The yeast is SOD-deficient and the activity modulated comprises increased or decreased Bcl-B mediated yeast cell survival. Identifying an agent that modulates activity of the polypeptide of (6), comprises contacting a membrane channel created with the polypeptide under conditions allowing transport of a molecule through the membrane channel with a test agent, and measuring transport of the molecule in the presence of the agent in comparison to transport in the absence of the agent, where increased or decreased transport of the molecule in the presence of the test agent identifies an agent that modulates activity of the polypeptide. The polypeptide comprises a BH4 domain. The membrane is synthetic or natural. The molecule comprises an ion. Identifying a molecule that binds to the polypeptide of (6), comprises contacting the polypeptide with a test molecule and determining whether the test molecule binds to the polypeptide. The polypeptide contains one or more 15N-labeled amino acids, and the binding is detected by resonance changes in the polypeptide. The test molecule comprises a polypeptide sequence that comprises an antibody. The test molecule is attached to the surface of a substrate, or the polypeptide is attached to the surface of a substrate. The test molecule comprises a library of molecules. The library is attached at discrete positions of a substrate. Contacting is in solution, in solid phase, in a cell or in situ. Detecting Bcl-B in a sample comprising: (a) contacting a sample having or suspected of having Bcl-B protein or nucleic acid encoding Bcl-B with the antibody cited above, or (I) under conditions allowing binding; (b) separating bound protein or nucleic acid from unbound protein or nucleic acid; and (c) determining the amount of Bcl-B protein or nucleic acid having about 70% identity to S1 to detect Bcl-B in the sample. The sample was obtained from a subject having or at risk of having a cell proliferative or degenerative disorder. The cell proliferative disorder comprises hyperproliferation or undesirable apoptosis. Identifying an agent that modulates binding of the polypeptide of (6) to a molecule comprising: (a) contacting the polypeptide with a binding molecule under conditions allowing binding, in the presence and absence of a test agent; and(b) measuring binding between the polypeptide and the molecule in the presence and absence of the test agent, where increased

or decreased binding identifies an agent that modulates binding of the polypeptide. The binding molecule comprises a Bcl-B protein or a Bcl-2 protein family member, comprising Bcl-2, Bcl-XL or Bax. The polypeptide comprises a Bcl-B domain. The assay comprises a two-hybrid system for expressing the polypeptide and the binding molecule, where binding is measured by detecting fluorescence of the polypeptide conjugated to a fluorophore. ACTIVITY - Nootropic; Neuroprotective; Cytostatic; Immunosuppressive; Antiparkinsonian; Vasotropic; Cerebroprotective; Anticonvulsant; Vulnerary. No biological data is given. MECHANISM OF ACTION - Bcl 2 Agonist. USE - The nucleic acids and polypeptides are useful in treating a subject having or at risk of a disorder associated with apoptosis, such as a cell degenerative or proliferative disorder like neural or muscle degeneration, e.g. Alzheimer's disease, Parkinson's disease, Creutzfeldt-Jacob's disease (CJD), Huntington disease (HD), Machado-Joseph disease (MJD), spinocerebellar ataxias 1, 2 and 6 (SCA-1, -2 and -6), dentatorubropallidoluysian atrophy (DRPLA), Kennedy's disease, ischemia, stroke, head trauma, neoplasia, autoimmune disorder or fibrotic condition (claimed). The polynucleotides, polypeptides and antibodies are useful in modulating apoptosis of cells. The transgenic animals can be used as in vivo models to study apoptosis and potential therapies for apoptosis. ADMINISTRATION - Administration can be intraperitoneal, intradermal, subcutaneous, oral (e.g. ingestion or inhalation), intravenous, intracavity, intracranial, transdermal (topical), transmucosal or rectal. No dosage is given. EXAMPLE - A TBLASTN search of the human Expressed Sequence Tag (EST) database using the amino acid sequence of the mouse Boo/Diva as a query resulted in the identification of homologous partial cDNAs. A human EST clone (accession number AA098865) was obtained and sequenced in its entirety, revealing an open reading frame encompassing the last 151 residues of a protein with homology to Boo (Bcl-B). The corresponding genomic sequence for this cDNA was identified in the human genome database (clone CTD-2184D3), which was derived from human chromosome 15q21.(82 pages)

DESCRIPTORS: antiapoptotic protein Bcl-B, adeno virus, retro virus, adeno-associated virus, lenti virus, reo virus, rota virus, herpes simplex virus, parvo virus, papilloma virus, cytomegalo virus vector-mediated gene transfer, expression in bacterium, plant, insect, human, yeast cell, transgenic animal, transgenic plant, seed, antibody, gene identification, drug screening, tissue-specific sense, antisense, fusion protein, DNA library, bcl-2 agonist, BLAST computer bioinformatic software, expressed sequence tag, human genome database, appl. neuron degradation disorder, muscle degeneration disorder, Alzheimer disease, Parkinson disease, CJD, Huntington chorea, Machado-Joseph disease, spinocerebellar ataxia, dentatorubropallidoluysian atrophy, Kennedy disease, ischemia, stroke, head trauma, neoplasia, autoimmune disease, fibrotic disorder therapy, gene therapy, animal model herpes virus papova virus arthropod fungus bioinformatics mammal 4p16.3 chromosome-4 nootropic neuroprotective cytostatic immunosuppressive antiparkinsonian vasotropic cerebroprotective anticonvulsant vulnerary chromosome-15 15q21 DNA sequence protein sequence (22, 09)

SECTION: THERAPEUTICS-Protein Therapeutics-GENETIC TECHNIQUES and APPLICATIONS-Gene Expression Techniques and Analysis; GENETIC TECHNIQUES and APPLICATIONS-Genomic Technologies-GENETIC TECHNIQUES and APPLICATIONS-Transgenic Animals and Animal Models; BIOINFORMATICS and ANALYSIS-Software-BIOINFORMATICS and ANALYSIS-Databases; THERAPEUTICS-Gene Therapy-DISEASE-Cancer; DISEASE-Cardiovascular-DISEASE-Central Nervous System; DISEASE-Neuromuscular System-DISEASE-Other Diseases; DISEASE-Autoimmune Disease-AGRICULTURAL BIOTECHNOLOGY-Plant Genetic Engineering

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